

Royal Worcester Porcelain, Severn Street and King Street, Worcester

**An Archaeological Watching Brief
(Service trenches and ground reduction)**

for Berkeley Homes (Oxford and Chiltern) Limited

by Danielle Milbank and Andrew Muddin

Thames Valley Archaeological Services Ltd

Site Code RWP 04/65f

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Summary

Site name: Royal Worcester Porcelain, Severn Street and King Street, Worcester

Grid reference: SO 8215 5425

Site activity: Watching Brief

Date and duration of project: 19th February–12th September 2007

Project manager: Steve Ford

Site supervisors: Danielle Milbank, Simon Cass and Andrew Mundin

Site code: RWP 04/65f

Summary of results: Structural remains, finds and deposits of various dates were recorded, including medieval walls, and various post-medieval building remains, some relating to the porcelain factory, others to housing.

Monuments identified: A wall of possible medieval date, and brick-built features of 18th to 20th century dates relating to the Porcelain Factory. Human remains associated with the churchyard of St Peter the Great.

Deposits certainly or probably of late post-medieval date. Structural remains on the King Street, Severn Street and Sidbury frontages of post-medieval housing. Two stone walls of possible medieval date. A residual sherd of medieval glazed pottery.

Location and reference of archive: The archive is presently held at Thames Valley Archaeological Services, Reading and will be deposited at Worcester City Museum in due course.

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Report 04/65f

Introduction

This report documents the results of an archaeological watching brief carried out at Royal Worcester Porcelain, Severn Street, Worcester (SO 852 543) (Fig. 1). The work was commissioned by Mr Cliff Buddery of Berkeley Homes (Oxford and Chiltern) Ltd, Berkeley House, Abingdon Science Park, Barton Lane, Abingdon, Oxfordshire, OX14 4NB.

Planning permission (App no P05D0432) has been gained from Worcester City Council to redevelop the site of the Royal Worcester Porcelain works for a hotel complex and new residential apartments, with the refurbishment and reuse of existing historic buildings. This permission applies to both the northern and southern parts of the Porcelain Works complex, and the planning consent is subject to three archaeological conditions (54, 55 and 56). Conservation Area consent has also been gained (App no L05D0073) with a further condition (2) for a record of the factory buildings and manufacturing processes prior to demolition. A summary of the relevant consents is presented in a brief for the project (WCM2006). The conditions attached are in accordance with the Department of the Environment's Planning Policy Guidance, *Archaeology and Planning* (PPG16 1990), and the City Council's policies on archaeology.

For planning and development purposes the Severn Street site has been divided into three zones, Areas A–C (Fig. 2) and this watching brief concerns areas B, C, and the northernmost part of Area A. This report is solely concerned with the watching brief carried out on the phase of groundworks involving ground reduction and service trenching in the northern part of the porcelain works at Severn Street and is the latest in a series of investigations on this part of the site (AA 2005b; AA 2005c; Cass 2007a and b). The southern section of the site has also previously been reported upon (Wallis and Colls 2006).

The development proposals for this area involve the rerouting of electricity cables to serve the redeveloped northern part of the site and an area of ground reduction for the widening of King Street, beyond the boundary wall of the Porcelain Works.

The field investigation was carried out to a specification approved by Mr James Dinn, Archaeological Officer for Worcester City Council. The fieldwork was undertaken by Danielle Milbank, Simon Cass and Andrew Muddin between 19th February and 12th September 2007 and the site code is RWP 04/65. The archive

is presently held at Thames Valley Archaeological Services, Reading and will be deposited with Worcester City Museum in due course.

Location, topography and geology

The site is located in the Diglis area of Worcester, which is situated in the Severn Valley, to the north of the Severn's confluence with the River Teme (Fig. 1). The site itself lies in the valley of a former tributary to the Severn, the Frog Brook, whose extant part now comprises part of the Birmingham to Worcester Canal. According to the British Geological Survey, the underlying geology consists of alluvium, with gravel terrace deposits of the River Severn occurring at the northern edge of the site (BGS 1993). A borehole investigation (STATS 2004) showed that on average, made ground overlay alluvial deposits to a depth of at least 2m below present ground level.

The site comprised an irregular parcel of land, the majority of which was occupied by large industrial buildings, many undergoing demolition, and the visitors' car park area. The watching brief also encompasses the service trenches to be dug in the public highway, outside the boundary of the Severn Street site, along King Street and Severn Street. The site is reasonably flat at a height of approximately 15m above Ordnance Datum.

Archaeological background

The archaeological background and potential of the site has been summarized in a brief for the project (WCM 2006) issued by Mr James Dinn, Archaeological Officer at Worcester City Museum, drawing on information presented in a desk-based assessment, small scale evaluation and watching brief during geotechnical investigation (AA 2005a; 2005b; 2005c; Morriss and Sherlock 2005). In summary, the site lies close to the confluence of the Frog Brook and River Severn (Fig. 1). Such a riparian location, especially if a terrace edge can be identified, is often one preferred for earlier prehistoric settlement, and the Worcester City Historic Environment Record notes the presence of prehistoric metalwork finds recovered from the river nearby. There is also a possibility of the presence of Roman deposits on the site, perhaps associated with a river port. Roman deposits are recorded in the northern area of the Severn Street site, several Roman burials were recorded in the southwestern area of the Severn Street site, and a single burial approximately 75m west of the corner of King Street (AA 2005b; 2005c).

Prior to use as a factory, the site was used as allotments, a ropewalk, timber yard and saw mill and apparently as a dump for pottery manufacturing waste. A recent evaluation at the Portland Walk site to the south of the Severn Street site (Wallis and Colls 2006) failed to identify any deposits of archaeological interest.

The northern zone, which comprises Areas B and C and the northernmost part of Area A, of the planning and development timetable, includes the medieval town wall and ditch, a tower, the site of St Peter's church and graveyard, and tenements (Fig. 2).

The church is thought to be Saxon in origin, though the first record dates to between 1204 and 1234, and was rebuilt at least twice. The medieval church building was demolished in 1838 and a larger church built on the site. A recent evaluation on the site of the church encountered well-preserved Roman features, including a ditch and postholes, and previous excavation beneath the crypt floor produced a horse burial of likely prehistoric date.

The extent of the Roman town is less clear cut but earlier limited pre-determination evaluation located some Roman deposits at the northern end of the site in Area B. Roman occupation and burial is recorded just to the north-west of the redevelopment site and further burial deposits are recorded to the south-west. In early post-medieval times, specifically at the time of the civil war, the site was traversed by the earthen defences erected to defend the city. The site area was occupied in later post-medieval times for pottery production and eventually became the Royal Porcelain Works.

Objectives and methodology

The purpose of the watching brief was to excavate and record any archaeological deposits that would be affected or destroyed by groundworks for the new development, including monitoring of test pits and service trenches, which were expected to be c.0.6m wide and 0.5m–0.7m deep. In some places, these were eventually dug to a depth of 0.90m. In addition, any archaeological deposits affected by the ground reduction for road widening were to be excavated and recorded.

Results

Service Trenches (ST) 1–6 (Figs 2 and 3)

Prior to service trenching, several hand-dug test pits were excavated in order to locate existing services. These were 2.5m by 1.25m and were 1m deep, and were in the positions indicated in Fig. 2. These were (mainly) later intersected by the service trenches and the stratigraphy encountered in the test pits is included in the descriptions of the service trenches.

Service trench ST1 was 0.50m wide and was excavated by Kubota-type machine outside the Royal Worcester Porcelain Factory, adjacent to the visitors' entrance and museum. A 3.5m length (aligned north-south) of trench was excavated along the centre of the pavement of Severn Street to the south of the exit, to a depth of 0.9m. The stratigraphy observed in this area was 0.04m of Tarmac onto hoggin 0.11m thick. This overlay dark brown silt (353) which was observed to the base of the trench, and contained moderate brick and tile fragments and occasional coal fragments. No features or finds were observed in this area.

A continuation of this trench resumed, avoiding the road access to the museum (ST2), along the centre of the pavement, at a depth of 0.7m, and aligned approximately north-south (Pl. 1). Adjacent to the south-west corner of the Dyson Perrins Museum, at 3.6m from the south end of the trench, a brick-built wall (structure 307) was encountered. This was constructed of late 19th- / early 20th-century bricks, measured 0.29m thick in total, which represents three courses, and was 2 courses wide. The stratigraphy here comprised paving stones overlying hoggin (357) 0.11m thick. This overlay a crushed Tarmac layer (358) 0.04m thick which in turn overlay both 307 (the wall) and layer 359, a mixed demolition rubble and hoggin layer. This in turn overlay 360, which comprised grey brown clay with frequent 19th-century glass, brick and tile fragments, which was observed to the base of the trench. At 6m from the south end, two courses of modern brick overlain by hoggin and Tarmac layers were observed.

To the north of this, the stratigraphy had been disturbed by a modern cable trench. Two brick walls, 305 and 306, were observed at 18m and 21.5m from the south end, aligned approximately east-west (Fig. 6). Six courses of each wall were visible in section, and the walls continued below the base of the trench at 0.70m deep. The bricks in both were unfrogged and likely to be of 18th-century date. The space between them was filled with 351 (loose mixed brick rubble) and 352 (light grey brown silty clay with brick rubble). They probably represent the backfilled cellar of a demolished house on Severn Street. The stratigraphy to the north of 306 consisted of pavers which overlay hoggin, which in turn overlay red brown sandy silt to the base of the trench at 0.9m from the pavement surface (Fig. 6). This is likely to represent a cellar for a building fronting Severn Street.

At the corner of Severn Street and King Street, the path of the trench altered from the proposed plan in that it was dug in the road itself, *c.* 0.25m offset from the kerb. The stratigraphy observed here consisted of Tarmac 0.09m thick onto a dark brown sandy silt layer 0.32m thick, containing occasional small brick fragments and charcoal. Although not visible in section, red brown sandy clay was visible but patchy in the base of the trench at 0.85m below the road surface.

Between 12.10m and 13.8m eastwards from the corner point, the dark brown silt layer lensed out and here, the road surface and hoggin layers overlay dark brown sandy silt 0.10m thick, which in turn overlay reddish brown sandy clay 0.22m thick. At 15m to 15.50m the top of the brown sandy silt layer sloped down, though the edge was very diffuse and unclear, and did not appear to be a cut feature. Here, red brown sandy clay geology was again visible in the base of the trench, while the stratigraphy observed comprised Tarmac/paving 0.15m thick which overlay hoggin 0.38m thick. This in turn overlay dark brown sandy silt to the base of the trench at 0.92m.

The trench was then extended roughly east, parallel to the kerb, showing the same stratigraphy of Tarmac and hoggin layers which overlay brown sandy silt to a depth of 0.85m. At 35m from the King Street/ Severn Street corner, the trench was angled to the south to pass under the boundary wall (without demolishing it) and stopped at the electricity substation within the Porcelain Factory (to the west of the visitor's car park). This part of the trench measured 1.6m long and was aligned north-south. To the south of the wall, modern made ground (mostly crushed concrete and brick rubble) 0.30m thick overlay dark brown sandy silt 0.85m thick. No archaeological finds or features were observed here.

From this point, the trench (ST3) was continued along King Street, at 0.25m offset from the kerb, which was to join up with the west end of ST6, a section of service trench dug prior to the road widening at the north eastern corner of the site. Here, the stratigraphy showed Tarmac and hoggin, which overlay dark brown sandy silt (386) to a depth of 0.85m (Fig. 6). No archaeological finds or features were observed.

Service trench (ST4) was excavated at the northernmost part of the site from the edge of the footpath on Sidbury (A44) and parallel to King Street. This lay inside (east of) the wall for the current car park, which was later demolished for the King Street road widening. The trench was excavated from the northern boundary wall of the car park, heading south-west to the car park entrance. The stratigraphy observed in the first 4m length comprised Tarmac 0.10m thick which overlay hoggin 0.33m thick. This overlay a layer of crushed Tarmac and brick fragments (354) 0.15m to 0.18m thick, which is likely to represent levelling for the pavement on the corner of King Street. Layer 354 in turn overlay structures 324 and 325, and also overlay a layer of mixed brown silt and rubble (353) which was 0.26m thick (Fig. 6). Layer 353 contained 3 sherds of mid 17th-century or later pottery which are possibly residual finds but give at least a broad *terminus post quem*. From 2.7m to 4.0m a mortar lens, 374, 0.15m thick at its thickest overlay deposit 373 and was overlain by deposit 353. It was visible in the west-facing section, though not in the east-facing section.

This lens (374) overlay a red brown silty sand layer containing moderate brick rubble and occasional sandstone fragments (373), which was 0.14m to 0.20m thick, visible in the base of the trench at 0.98m below the car park surface. This did not contain any finds or dating evidence, but may be a levelling layer postdating structure 302. From 2.1m to 2.32m a narrow band of brick fragments and charcoal flecks (377) was visible in the base of the trench, though barely appeared in section. The bricks were too fragmentary to be datable.

Deposits 353, 373, 375 and 376 were truncated by brick structure 324. This brick structure, at 4.70m from the northeast end, was 0.34m wide and 6 courses high as seen in section. At 8.05m a brick wall 325 was observed in the west-facing section. It was 0.43m wide and 6 courses high and measured 0.78m. No construction cut or foundation was visible, and it was not present in the section opposite. It is likely that the houses were demolished above ground while leaving several courses of structures 324 and 325. These walls are likely to represent the tenement housing shown along King Street on the 19th-century Ordnance Survey maps.

At 4.6m, stone surface 302 was visible in the base of the trench (Fig. 3; Pl. 2). It was 0.46m wide and aligned approximately east-west. It comprised one course of irregular sized and shaped but flat topped greenish grey stone, possibly marl, unbonded but with 0.02m thick pale orange sandy mortar overlying it in places. Some stone was missing in plan, and in this gap stone and tile fragments overlay (356), which comprised red brown sandy clay with frequent brick, tile and stone fragments throughout. Layer 356 did not contain any finds or dating evidence and its relationship with structure 302 could not be ascertained, though it evidently predated 373 and 376.

To the south of wall 324, Tarmac 0.10 thick overlay hogging 0.32m thick, which in turn overlay 354, the crushed Tarmac layer, which was 0.16m thick. This overlay 375, a layer of mixed pale mortar and brick rubble and brown sandy silt 0.30m thick, which in turn overlay 376, a layer of grey brown silty sand (*c.* 50%-50%) with occasional to moderate reddish sandstone and red brick fragments and very occasional small pebbles. This layer was visible to the bottom of the section at 1.02m below the Tarmac level, but at the base of the trench, red brown sandy clay (356) was observed. At 6.8m to 9.7m, a band of greenish sandstone 301 was observed in the base of the trench, though not in either section. It was badly degraded and very soft, and there were no individual blocks visible; it did not appear to be a structure but may represent a robbed out wall. The 1838 Church of St Peter's was constructed of similar material but the alignment of the stain could not be ascertained and no finds or dating evidence were recovered from within it to suggest this.

Structures 324 and 325 are associated with one of two houses shown on the 1940 Ordnance Survey map, located immediately to the north-west of the 'Old Vicarage'. These comprised part of a row of terraced housing

which appears to have been built along the east side of St Peter's Street (as it was then named; now King Street) between 1829 and 1835, though all but the two buildings to which the foundations belong were demolished before 1928. These last two houses appear to have been demolished by 1963.

To the south of wall 325, both sections showed Tarmac and hoggin (0.10m and 0.30m thick), which overlay a homogenous brown silt and brick rubble layer 353, with occasional fragments of reddish and greenish grey sandstone, and occasional charcoal and coal flecks. In the base of the trench at 0.92m deep, a red brown sandy clay layer (356) was observed. This did not contain any secure dating evidence. The base of the deposit 355 was undulating and the horizon with 356 was frequently indistinct, with occasional brick flecks and mortar rubble fragments distributed throughout both deposits.

At 19m along this trench, the total depth was 0.98m. Here, the stratigraphy consisted of Tarmac and hoggin 0.30m to 0.40m thick, which overlay a made ground (brown silt, brick and concrete rubble) layer 355 which was 0.30m thick. This overlay red brown sandy clay (356) with moderate brick and mortar flecks, which was 0.40m at its thickest.

At 23.5m along the service trench (ST5), the modern boundary wall of the car park, to the west of the trench, was demolished and the trench was aligned approximately east-west, outside the site boundary. Here, the stratigraphy was the same as that described above (Fig. 7). A portion of this wall to the east of the car park exit was then demolished and a section of trench (ST6) measuring 6.20m was excavated. This trench was aligned SW-NE and was typically 0.90m deep. Here, Tarmac and hoggin 0.11m thick overlay the made ground layer (355), which was visible in the base of the trench. Immediately south-west of the demolished wall, two walls, aligned approximately NW-SE, were visible in both sections of the trench.

The first of these, structure 303, was 0.90m wide in section and 5 courses were visible, with a 6th course exposed in the base on the trench. This was exposed more fully during the ground reduction for the road widening phase of work (structure 321). The second wall portion (323) was encountered at 33.8m from the north-east end of the trench. It was of the same construction, 1m wide with 6 courses visible in section, the 6th also seen in plan in the base of the trench at a depth of 0.85m. As mentioned earlier, ST3 linked the end of this area to the electric substation at the east end of ST2.

Ground reduction (Northern part of Area C) (Figs 3, 7)

The road was to be widened at the north end of King Street, and the ground was reduced by 0.55m overall in an area of 40m by 8m (Fig. 3). At the northern part of this area, a tree had disturbed the made ground 364, which

consisted of brown slightly clay sandy silt with frequent brick rubble and glass fragments. This deposit also contained two sherds of pottery with a mid 17th-century date, which are likely to be residual finds given the stratigraphy in this area of the site. This large deposit overlay 362 and 363, a tiled floor surface which was truncated by tree roots from a recently removed tree within the pavement on Sidbury (A44) (Pl. 3). The tiles were 125mm square, and the floor is likely to be a Victorian surface. This was butted by a section of brick wall, 310. A section of brick wall (309) comprising two courses onto reddish lime mortar, aligned SW–NE, was observed to cut the tiled floor at a depth of 0.55m below the pavement surface. The tiled floor in turn overlay brown sandy silt with frequent brick rubble layer 365, which extended to the south and was *c.* 0.55m thick overall. This floor was removed and the level reduced to 0.76m below pavement level, exposing deposit 365 across this area.

To the south of the tiled surface, overlain by 365, a culvert (structure 313) was exposed which was aligned NW–SE, with the top at 0.70m below the pavement. As seen, it was 3.7m in length and 0.74m wide, and comprised a curved top of roughly mortared unfrogged red bricks measuring 235mm by 115mm by 60mm. The culvert sides were constructed of grey, roughly-faced unbonded sandstone (average size 270mm by 270mm by 120mm thick) with some tile included. Five courses were visible, with a total depth (from the top surface to the interior base) of 0.54m. It was infilled with 381, which comprised loose brick rubble and grey brown silt. The stone appeared to be sandstone and marl, which is not found locally and generally thought to be used in Worcester from the 19th century onwards. No closely datable finds were recovered from the structure or the infilling deposit, though the culvert is thought to be associated with the terraced housing on King Street and therefore of broadly late post-medieval date.

The ground level was reduced to the south of the culvert, at an overall depth of 0.70m from pavement level. Here, the deposit 365 was observed across the new ground level, and contained 19th-century pottery fragments, glass fragments and clay pipe, of which all but a sample were discarded. A brick-built well (312) with its construction cut (326) was observed, measuring 1.15m in diameter, and infilled with 366, a mixture of brown sandy silt, coal, ash and brick fragments. It also contained two sherds of pottery dating to the 19th century or later. The well appears to be a 19th-century feature, though its location is not recorded in cartographic evidence.

A large dump of tile 315, infilled with 368, measuring 1.5m north west-south east by 3.8m NE–SW, was exposed to the south of this, which contained transfer-printed pottery and is therefore likely to be a Victorian dump within the made ground. This had truncated a small oval pit (314) which was 1.06m wide at its widest

point. This was infilled with 367, which comprised brown black silt containing clay pipe and 8 fragments of mid 18th-century pottery.

At the west of the ground reduction area, a small section of stone wall was observed (311), aligned north-south. This comprised a single course of roughly faced reddish sandstone blocks (with one of a greenish colour), with the top of the highest block at 0.60m below the road surface. It was 1.8m in length, 0.26m at the widest point, and 0.28m thick, with no mortar or bonding material present. No construction cut was visible, although it appeared to be *in situ*. It correlates approximately to the location of the churchyard wall (to the northwest of the church) as shown on the 1902 Ordnance Survey map.

At the south of the ground reduction area, a large brick structure (321) was exposed which appeared to be heavily truncated, with the top course at 0.2m below the pavement surface (Pl. 4). This was a substantial square-shaped structure, 7 courses deep and up to 1m wide in places, and appeared to be of Victorian construction, and was encountered in ST5 (context 303). The walls were very thick for tenement dwellings, and the site of the north entrance of St Peter's Church (as rebuilt in 1838) is very close. However, the church is described as being constructed of brown Broseley brick, while the bricks of the structure were uniformly light red in colour, and the structure 321 was aligned with King Street (south-southwest by east-northeast) rather than the north-south and east-west alignment of the church. Although this cannot be attributed to a particular building, it is likely to be associated with the church, possibly a structural part such as a porch, though none appear in the cartographic evidence.

At the northern end of the ground reduction area, on the pavement of Sidbury (A44) beyond the northern perimeter wall of the Porcelain Works visitors' car park, a large area was excavated for an inspection chamber for services (Fig. 4). This measured 3.8m (NW-SE) by 4.8m (SW-NE) and was 3.3m deep overall. Here, Tarmac 0.10m thick overlay hoggin 0.10m thick, which in turn overlay a made ground layer (384) which was 0.34m thick. This overlay a dark brown silt layer which was 0.16m thick. This in turn overlay the concrete top of a large modern brick structure, which was 1.8m wide and c. 2m high as seen, and is part of the old inspection chamber in the same location. This was excavated through a homogenous brown grey silt layer which was loose and friable in places, and contained brick rubble and occasional 19th- and 20th-century pottery fragments. This was observed in all sides of the excavated area, and appeared to be a continuous and homogenous layer, and the natural geology was not encountered. Despite the proximity of the assumed location of the Sidbury Gate on Sidbury itself, the ground has been considerably truncated in the area of the inspection chamber, and

groundwork here was effectively re-excavation of the original chamber. The brickwork was not closely datable, and it is possible that the inspection chamber was built using an existing cellar space, though there is no cartographic evidence to determine this. No finds or deposits dating to the medieval period or earlier were encountered in this area.

Service trenching (Area C- East side) (Fig. 5)

This trench was excavated along the eastern perimeter of the site, adjacent to the canal. The initial part of the trench was excavated through recent demolition rubble from the Porcelain Works building which formerly occupied this area. This portion was 5.5m long, 0.50m wide and 1.0m deep overall.

A brick wall (316) was observed at 5.5m, on the same SW–NE alignment as the trench, which appeared to be constructed of Victorian or modern bricks. Here, made ground 382 (comprised of crushed brick and concrete) which was 0.12m thick, overlay the wall, which was 1m wide as seen and was visible to the base of the trench at 1.3m deep (8 courses). To the north-east of this, made ground 382 (0.12m thick) overlay made ground 383 (mixed crushed brick and concrete and black brown silt) which was 1.18m thick to the base of the trench. At 7.9m from the south-west end, a brick wall (317) crossed the trench, aligned NW–SE. It was substantial, at 0.48m wide, and the top course was at 0.78m below current ground level, and was overlain by made ground layers 382 and 381. The top appeared to have been truncated prior to the service trench being excavated, and it was not visible in section above this level. Five courses were visible, measuring 0.48m deep in total. From the construction it appears to be contemporary with wall 316 (below), of broadly Victorian date, and may be an earlier boundary of the churchyard, though cartographic evidence for this is inconclusive.

To the north-east was deposit 371, which was firm, dark grey brown sandy silt with occasional brick flecks, mortar flecks and charcoal. This appeared to be butting the wall and no construction cut was visible. Deposit 371 contained a small deposit of human bone (318) which appeared to be partially articulated (i.e. tibia, fibula in alignment, with smaller bones displaced (Fig. 5). Deposit 370, also a dark grey brown sandy silt with brick, mortar and charcoal flecks, butted 371 to the northeast (though it is possibly the same deposit) and two further deposits of human bone were encountered within this, Sk 320 and Sk 322 (Pls 5 and 6). Both were encountered at a depth of 1.15m below ground level, and it appears that one assemblage related to lower leg and foot (in the case of 320) and can be considered partly articulated, while the other was more loosely grouped and comprised shoulder and arm bones (322). Context 320 also included iron nails (possibly coffin or hobnails) and other iron items, possibly coffin furniture. It was not possible, due to the narrowness of the excavated area, to ascertain

whether these items were displaced or if they could be *in-situ* items of coffin furniture, but overall the remains certainly appear to be redeposited, rather than *in situ* burials. Numerous possible occasions for the moving of burials, in whole or in part, within a churchyard can be suggested. The map evidence suggests the extent of the graveyard has varied even from the middle 19th century onwards, and the medieval extent is wholly unknown. Unfortunately there is no evidence for either the original date of burial or the date of re-burial of these remains.

The walls 316 (6 courses of red brick visible in ST7 to the south of 317 and aligned parallel to the trench sides) and 317 appear to match approximately the position of the corner walls of the churchyard of St Peter the Great at the south end as they appear on the Ordnance Survey map of 1884. Human remains encountered at this depth and contained within these walls can be assumed to be burials within the churchyard, though they may have been subject to a degree of disturbance, due to other burials perhaps, and tree root action. The churchyard was closed to new burials in 1858 (Archenfield Archaeology 2004), so this can be taken as the latest date for the burial of these remains, though due to possible displacement, it is not the latest date possible for their eventual deposition in this location.

The base of the trench sloped upwards at this point, and at a depth of 1.23m the deposit 370/371 overlay 372, which was firm, plastic, slightly blue grey clay with occasional small rounded stones. This clay is likely to comprise the drift geology underlying this part of the site, as it is an alluvial formation and is *c.* 10m from the Birmingham and Worcester Canal, formerly part of a tributary of the River Severn. Although a single potsherd with a medieval (13th-century) date was attributed to this context, it was recovered from the upper surface of the clay at the horizon with 370, and as such is not necessarily reliable dating evidence for 372. This is the only area encountered during the watching brief where geological deposits (in the form of bluish alluvium) were visible. With the agreement of the City archaeologist, the remainder of this service trench was to be excavated no deeper than 1m in order to leave the group of remains Sk 322 and any further potential human remains *in situ*. From this point, the stratigraphy encountered comprised made ground 382, 0.12m thick on average, which overlay dark grey brown sandy silt with occasional brick flecks, to the base at 1m deep. At 11m from the south-west end, the trench was turned 90° towards the south-east and stopped at 12.9m. This service trench will be extended as part of a later phase of work on the hotel part of the site.

Finds

Pottery by Alan Vince and Kate Steane

A moderate-sized collection of pottery from this archaeological watching brief consisted of a single piece of medieval pottery and a small collection of later post-medieval date (Appendix 2).

Medieval

A single sherd of Malvern Chase glazed ware jug of late 13th to early 16th century date was recovered from context 372 (Vince 1985, Fabric B4).

Post-Medieval

Fourteen sherds of post-medieval pottery were recovered. Apart from a single sherd of Staffordshire butterpot type (STBU), all are of mid 17th-century to mid 18th-century types and all are of non-local manufacture. They include Nottingham stoneware (NOTS); a post-medieval ware of unknown origin (PMEDX); Refined Redware (REFR); Staffordshire press-moulded slipware (STCO); Staffordshire wheelthrown red-bodied slipware (STRES); English White Saltglazed Stoneware (SWSG) and Tin-Glazed Earthenware (TGW).

Assessment

Context 353 was a deposit overlying structures of a definite mid/19th century date. It produced two sherds of post-medieval pottery, both likely to be of mid 17th century or later date. These are therefore residual.

Context 364 was a levelling/demolition layer. It produced a sherd of tin-glazed chamber pot, of mid 17th century or later date.

Context 366 was a well cut infill. It produced two sherds of pottery, one of them a buffware bowl of early 19th century or later date.

Context 367 was the fill of a small pit. It produced a small assemblage of post-medieval and early modern pottery of which the latest sherd was a Creamware plate. This assemblage is probably of mid to late 18th century date.

Context 372 was an alluvial clay layer and the sherd was recovered from its horizon with an overlying deposit, so the context is not secure. It is also possibly a residual find as 372 and 370 were located in the corner of a churchyard where considerable disturbance has taken place. The sherd itself is no earlier than the later 13th century and would not have been current after the mid 16th century.

A small collection of material from the deposits encountered was retained pending confirmation of the specific requirements of Worcester City Museum collection policy.

Human bone by Ceri Falys

A small quantity of human bone was recovered from four separate locations within the excavation area. As the nature of the deposits were unknown, osteological analysis was undertaken in order to establish if indeed each deposit of human bone represented inhumation burials, or isolated groups of co-mingled remains. All elements were assessed for their preservation, as well as any retrievable demographic (age and sex) information present. Indications of pathology or non-metric traits were also recorded. The ultimate aim of analysis is to determine the minimum number of individuals (MNI) represented by the remains, taking into account all deposits as a single group (Appendix 4).

A total of 129 human bone fragments were recovered from four contexts across the trench: Skeleton 318, Skeleton 320, deposit (372) and unstratified material. It was immediately apparent that the majority of the remains were not articulated in the burial environment, with perhaps the exception of elements from Skeleton 318 and the lower leg and foot recovered from Skeleton 320.

The surface preservation of the remains was poor, although it varied between contexts. All elements were fragmented to some degree. The majority of pieces were identified as belonging to the appendicular skeleton (the limbs), with only a few pieces from the spine and skull. Age and sex were determined using any osteological technique possible, as the elements commonly used for these methods (skull and pelvis) were absent or highly damaged. As a result, all assessments of age and sex are estimations, rather than concrete determinations. Assessment of such demographic data is only confidently made after the examination of several aspects of the same skeleton.

Pathologic alterations were observed, however it is strongly emphasized that changes to the bone are also very difficult to interpret in co-mingled remains when each element can only be assessed individually. As with age and sex determination, results are much more reliable when taking the entire skeleton into account.

Unstratified material

The unstratified material, composed of 14 fragments, is all poorly preserved and highly fragmented. The majority of long bone ends are absent, although the shafts are intact. Identified elements include a right femoral shaft, a right tibia, a right proximal ulna and two right radii, indicating the MNI of this context is 2 individuals. It is noted that one of the radii is very robust in size and muscle markings, while the other is very thin, gracile and fragile.

It is not possible to confidently assess the age and sex for these co-mingled remains. As the majority of long bone ends are absent, it is not even possible to identify the fusion, or lack, of the proximal and distal epiphyses. The only pathological alteration identified was located on the right tibia. More specifically, the

proximal aspect of this element is porous, with new bone growth present on the surface just lateral to the tibial tuberosity. No cause for this observed condition could be suggested.

Context (372)

The deposit of bone from context (372) primarily contains remains from the axial skeleton (cranium and vertebrae). Seven cranial fragments are present, notably a left temporal fragment, with a very small mastoid; a fused spheno-occipital synchondrosis of the occipital bone; and four parietal fragments, two of which are very thick, and the other two very thin. An immature thoracic vertebra is present and suggests an age of approximately 6 years or older. A single robust proximal manal phalanx, the head of a metacarpal, a left radius shaft and a femoral head of indeterminable side are also present.

It is apparent that two individuals are present in this deposit, with two very different ages. The immature thoracic vertebra indicates a wide suggested age range: a minimum age of 6 years yet younger than puberty.

The timing of the fusion of spheno-occipital synchondrosis is controversial, and depends on the researcher. For example Buikstra and Ubelaker (1994) state the synchondrosis fuses between the ages of 19-25 years (Buikstra and Ubelaker 1994), while Scheuer and Black suggest an ages based on the sex of the individual: 11-16years (♀) or 13-18years (♂). At any rate, the individual represented by this part of the occipital bone is an adult.

Estimations of skeletal sex were not possible based on the elements in the deposit, with the exception of the temporal fragment with a small mastoid process. Such a trait suggests a female individual. Again, this is only a tentative assessment.

Pathological alterations are present on the un-sided femoral head. Remodelled porous compact bone is present in and around the fovea capitis itself. Two other erosive lesions are located on the more superior-lateral surface of the femoral head. One of which had associated new compact bone deposition in and around the erosive lesion. The cause of these lesions was not able to be determined as the rest of the femur and surrounding skeletal elements are absent.

Skeleton 318

The remains excavated as “Skeleton 318”, were in fact those of two individuals. The majority of bone is immature with unfused epiphyses, however a fully fused right fourth metatarsal and a small portion of a fully developed proximal left ulna are also found in association with the juvenile remains.

The immature skeletal remains are primarily from the lower body, which possibly suggests that the remains were indeed articulated at the time of excavation. The elements present are: A lumbar and several sacral vertebrae, bilateral ilia, a left femur and left foot. A left ulna and radius shaft are also present.

Each element was assessed for age, as it is unsure whether the remains are from a single individual. All remains suggest an age of approximately 6 years. Sexing of the remains was not undertaken, as no reliable standards for this assessment have been created.

The proximal and distal ends of the left femur were notably porous, very much resembling the changes resulting from scurvy, however, this is only a possibility as definite diagnosis can only be given if the rest of the skeleton was present. The cranium and ribs would be necessary to confirm the diagnosis. Scurvy is a metabolic disease caused by a deficiency in Vitamin C which decreases the body's resistance to infection and predisposes the individual to haemorrhage into the soft tissues (Roberts & Manchester 1999). New bone is formed in response to the bleeding. Again, assessment of the rest of the skeleton would be necessary to make a confident diagnosis of aetiology.

Skeleton 320

A left lower limb (tibia, fibula and foot) and cranial bones were present, with the left limb believed to be articulated in situ. Age and sex could not be suggested for the poorly preserved remains, besides the general observation that the remains are from an adult individual.

Several incidences of pathology were observed on the elements of the lower limb even given the poor preservation. The distal fibula was abnormally large in size compared to the rest of the shaft, and demonstrated unorganized bone growth at the muscle attachments. The distal posterior and lateral aspects of the tibial shaft also showed well healed porous bone deposition. The plantar and posterior surfaces of the heel (calcaneus) had a large, well developed bone projection coupled with healed bone deposits. The remaining tarsals all display new porous bone growth, as well as the proximal aspects of the metatarsals. The third and fourth metatarsals also have large areas of compact bone deposition. Again, the cause of these alterations are unknown. They do seem to indicate the individual may have suffered from a foot deformity, however it is difficult to say without the rest of the skeleton present for examination.

The cranial bones also recovered are primarily from the occipital and left temporal regions. All of these fragments are quite thick. The temporal fragment contains the petrous portion and mastoid process. Age and sex could not be confidently stated, but the mastoid process is very small, possibly indicating a female individual, however several more cranial features are desired to make a reliable sex determination.

Conclusion

It is believed these remains were recovered from a charnel-type deposit. Some of the skeletal elements may have indeed been articulated at the time of burial, but these bone deposits are not believed to have been inhumation burials. Each context appears to contain the minimum of two individuals, with the exception of “Skeleton 320”. However, it cannot be confidently stated that the separate deposits contain different individuals, thus all the contexts will be considered as a single group, taking into account the duplicated skeletal remains across all contexts. As there are two adult right radii in the unstratified material, and evidence of a child approximately 6 years of age, a minimum number of individuals for the site has been calculated to be 3: Two adults and a child aged approximately 6 years old.

Animal Bone by Ceri Falys

A small assemblage of animal bone was recovered from five separate contexts across the excavation area. 19 fragments were present for analysis, weighing a total of 243g (Appendix 5). Overall the remains were poorly preserved and fragmented to varying degrees. This preservation limited the amount of retrievable information possible from each bone, resulting in the remains only able to be roughly sorted into categories based on size, not by species. These categories were “large sized” incorporating those remains of horse and cattle, and “medium sized” indicating sheep/goat, pig and dog species. More specific assessments of species present were made when possible.

Approximately 53% of the material was able to be identified, the remaining 47% of the assemblage were found to be too fragmented to confidently assign even to an animal size category. The elements able to be identified to species were: context [314] (367) contained several fragments of both a left and a right sheep/goat mandible, while cut [320] had a distal cow phalanx. The unstratified pieces of bone were all very fragmented and unidentifiable, with the exception of the proximal half of a left cow metatarsal. This element was the only bone present with evidence of cut and chop marks, presumable resulting from a butchery process. The minimum number of individuals (MNI) was determined to be 2: one cow and one sheep/goat individual, based on the absence of element duplication. No further information could be obtained from the remains.

Conclusion

The results of this watching brief have recorded a variety of deposits, most of which are certainly or probably of late post-medieval date.

Various structural remains on the King Street, Severn Street and Sidbury frontages seem to represent the remains of buildings present on the earlier Ordnance Survey maps. Where structures were observed, these were generally brick-built walls of approximately Victorian date, which had been heavily truncated, though it was not possible to pinpoint exactly which of these walls corresponded to particular buildings.

Two stone walls within the ground reduction area though are possibly of medieval date and if so relate to medieval occupation of the area.

To the south east, service trench ST7 has revealed human burial and other remains, which appear to lie within the boundary of the former churchyard of St Peter the Great, but which could date to any period in the church's long history. Two substantial walls perpendicular to each other would appear to define the south-east corner of the churchyard in late post-medieval times.

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Appendix 1: List of Features and deposits

<i>Cut</i>	<i>Deposit</i>	<i>Type</i>
	350	Deposit
	351	Deposit
	352	Made Ground
	353	Made Ground
	354	Made Ground
	355	Made Ground
	356	Layer
	357	Made Ground
	358	Made Ground
	359	Made Ground
	360	Made Ground
	361	Made Ground
	362	Tile floor
	363	Tile floor
	364	Made Ground
	365	Made Ground
312	366	Deposit
314	367	Pit
315	368	Deposit
	369	Layer
	370	Layer
	371	Layer
	372	Layer
	373	Layer
	374	Made Ground
	375	Made Ground
	376	Layer
	377	Wall
313	381	Culvert
	382	Made Ground
	383	Made Ground
	384	Made Ground
	385	Layer
318		Skeletal
319		Construction cut
320		Skeletal
321		Wall
322		Skeletal
323		Wall
324		Wall
325		Wall
326		Construction cut

Appendix 3: Pottery (number of sherds)

<i>Context</i>	<i>Code</i>	<i>No</i>
353	STBU	1
353	STRES	2
364	TGW	3
366	NCBW	1
366	REFR	1
367	CREA	1
367	NOTS	1
367	PMEDX	1
367	STCO	3
367	SWSG	1
367	TGW	1
372	HERB4	1

Appendix 3: Clay pipe

<i>Cut</i>	<i>Deposit</i>	<i>Type</i>	<i>No Stems</i>	<i>No Bowls</i>	<i>Wt (g)</i>
	368	Layer	1		4
	370	Layer	3		8
314	367	Pit	3	1	16
	353	Layer		1	18

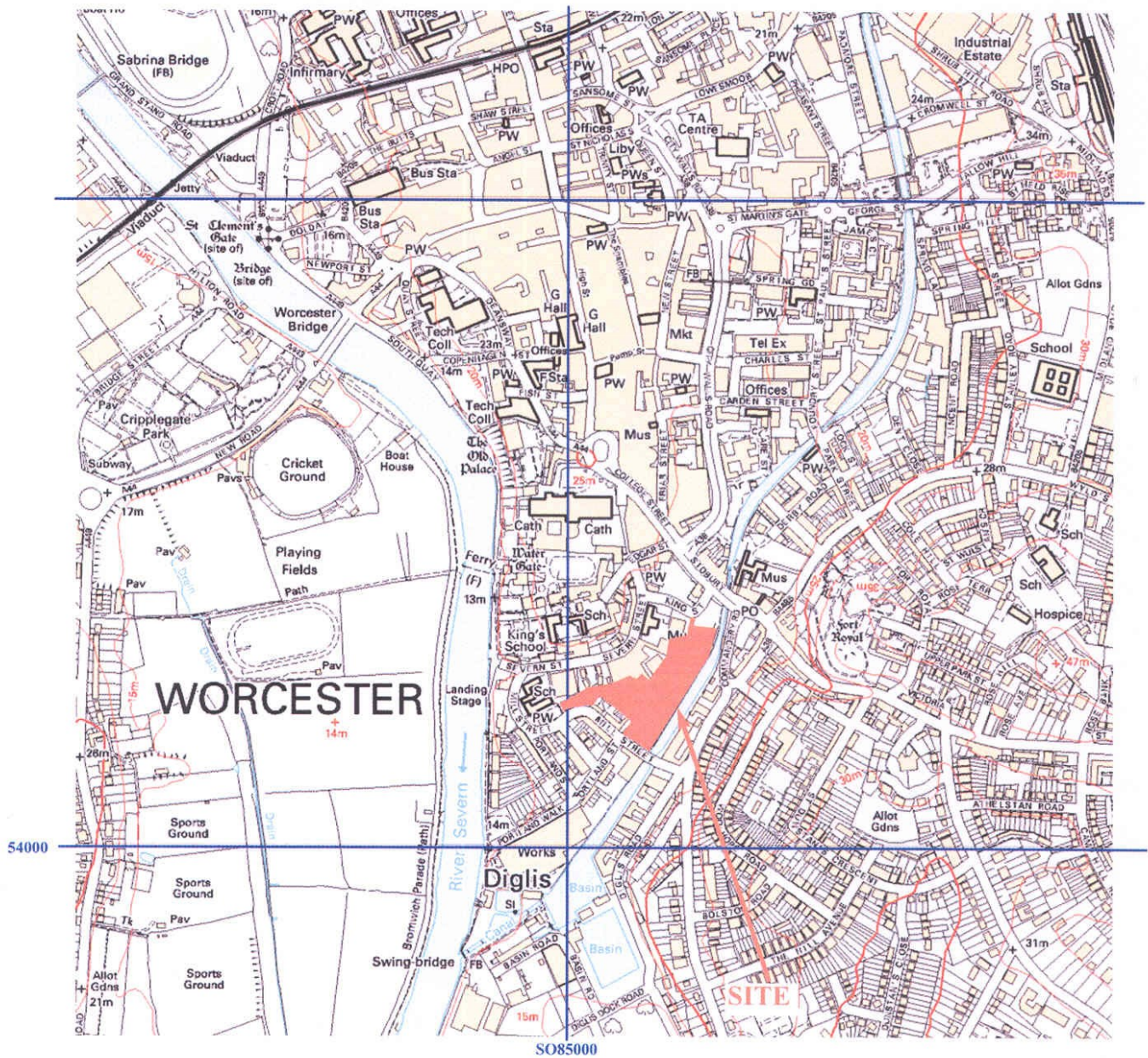
Appendix 4: Summary of human bone within each context

<i>Context</i>	<i>No. Frags</i>	<i>MNI</i>	<i>Demographic Data</i>	<i>Pathology / Non-metric Traits</i>
SK 318	55	2	Immature elements = approx 6yrs; one adult	?Possible scurvy?
SK 320	50	1	Adult	Foot deformity?
372	11	2	Unfused thoracic vertebra (6 years) 1 fused basi-occiput	Erosive + proliferative lesions on femur head
Unstratified	13	2	2 right radii	Bone growth on proximal tibia
Total	129	3	1 x 6yrs, 2 adults	Numerous

(MNI = Minimum number of individuals)

Appendix 5: Inventory of animal bone

<i>Cut</i>	<i>Deposit</i>	<i>No.Frags</i>	<i>Wt (g)</i>	<i>Large (Horse, Cow)</i>	<i>Medium (Sheep/goat, pig)</i>	<i>Unidentified</i>
	364	1	18	1	-	-
314	367	10	109	2	4	4
	372	1	1	-	1	-
320		5	24	1	-	4
Unstratified		5	97	1	-	4
Total		19	243	5	5	9
MNI		-	-	1	1	-



RWP04/65f

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Figure 1. Location of site within Worcester.

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Figure 2: Overall plan of Severn Street site showing locations of previous fieldwork (blue).

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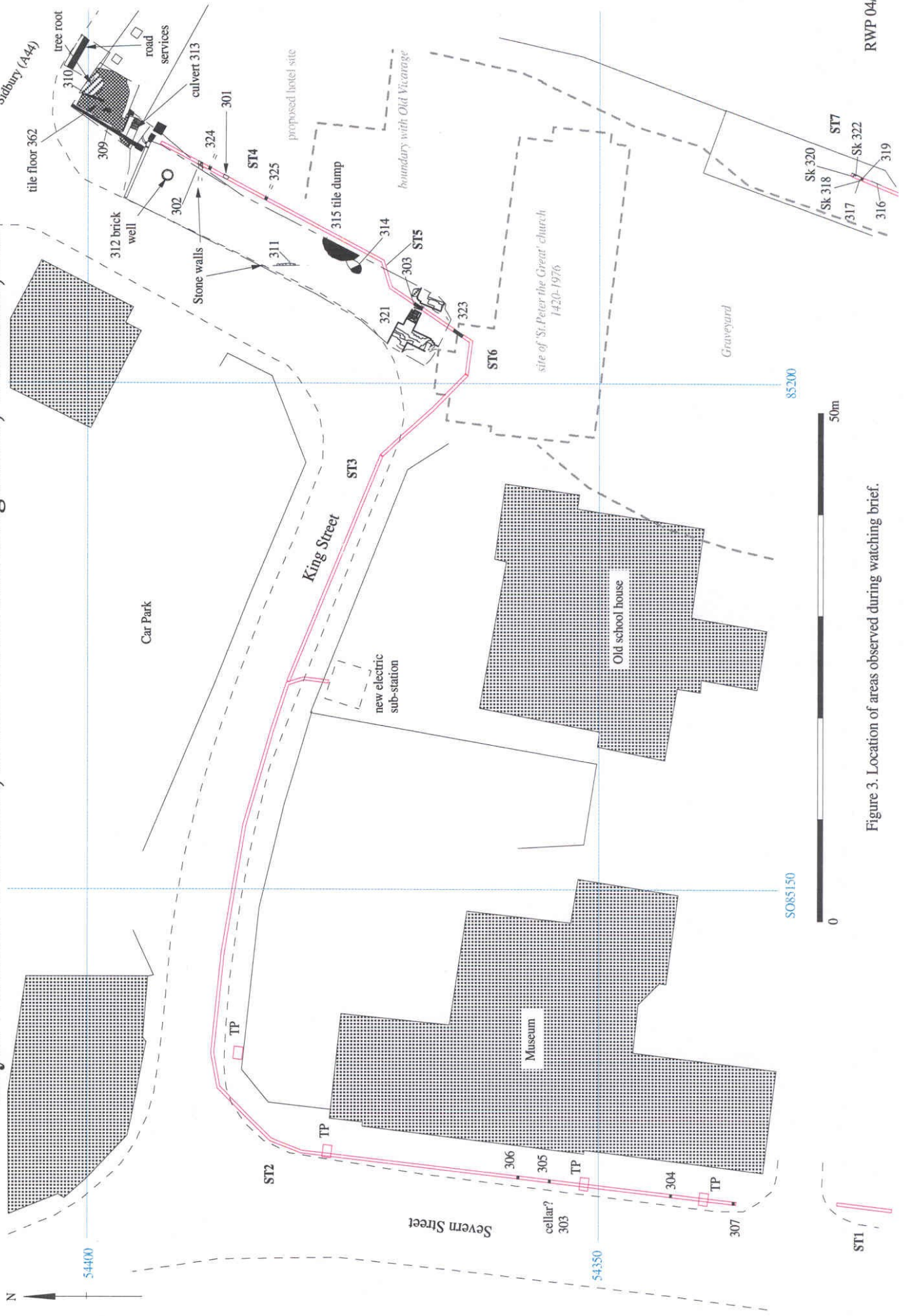


Figure 3. Location of areas observed during watching brief.

Royal Worcester Porcelain, Severn Street and King Street, Worcester, 2007

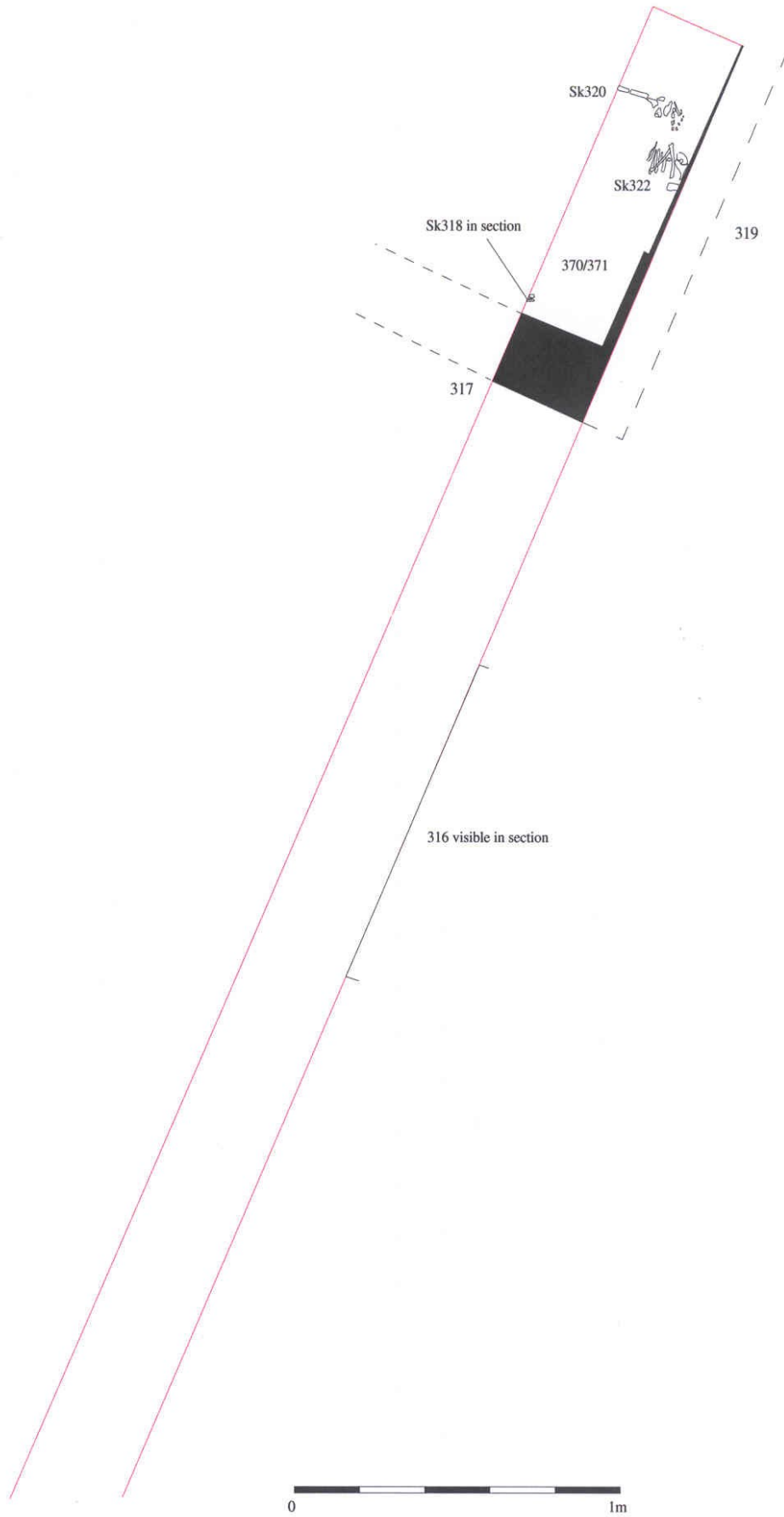


Figure 5. Detail of Service Trench (ST7) with human remains.

Royal Worcester Porcelain, Severn Street and King Street, Worcester, 2007

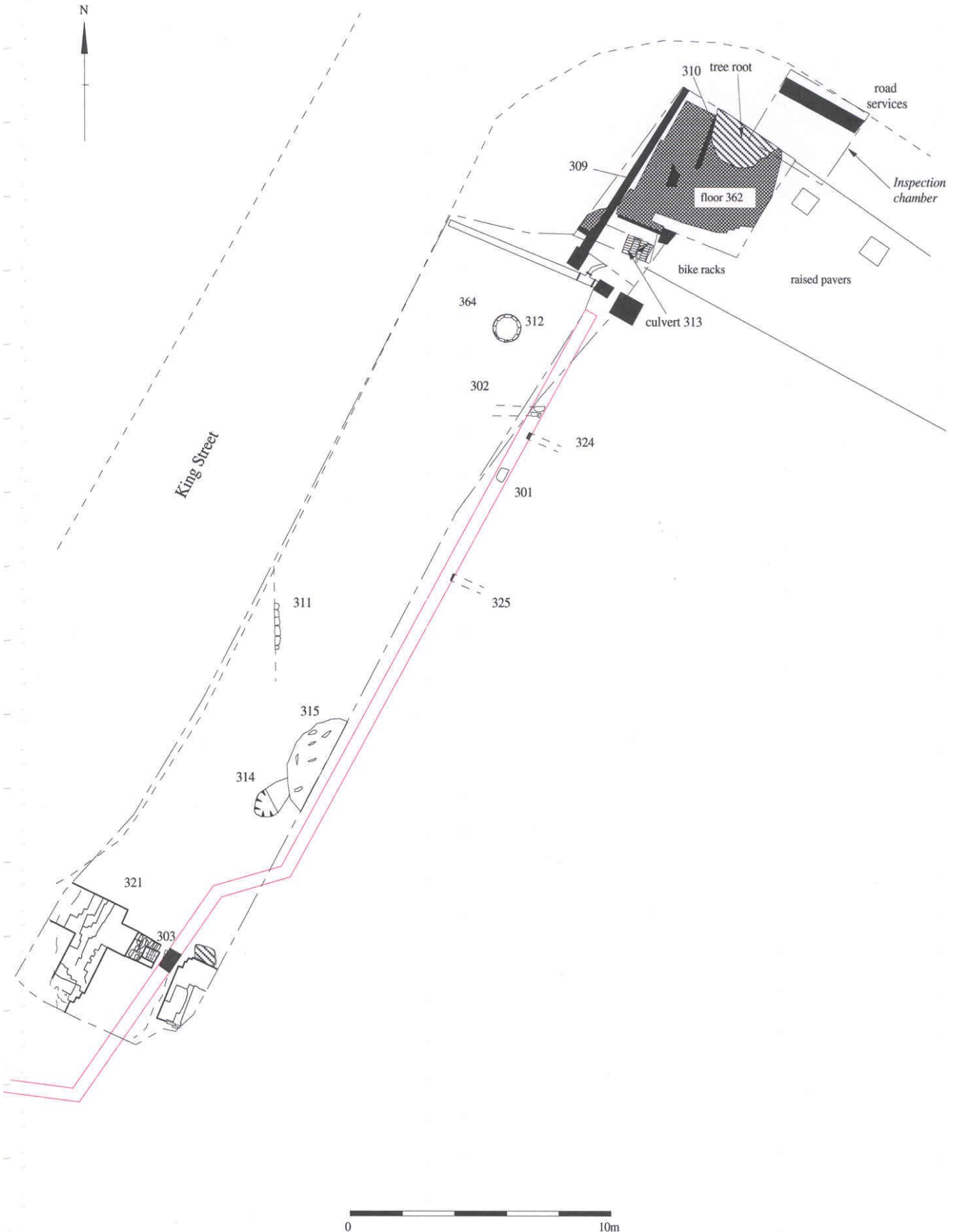


Figure 4. Detail of ground reduction for the road widening.

Royal Worcester Porcelain, Severn Street and King Street, Worcester, 2007

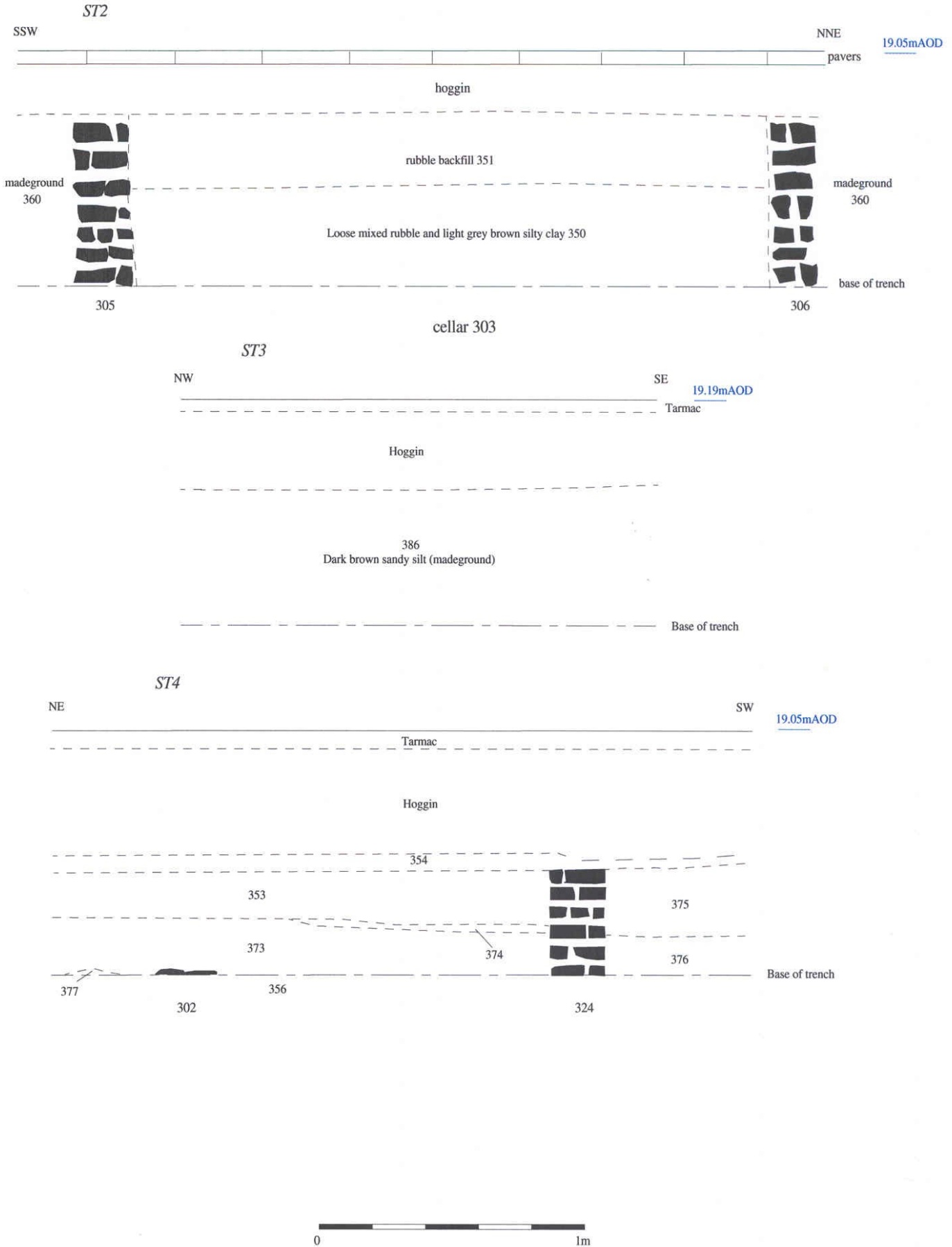


Figure 6. Sections

Royal Worcester Porcelain, Severn Street and King Street, Worcester, 2007

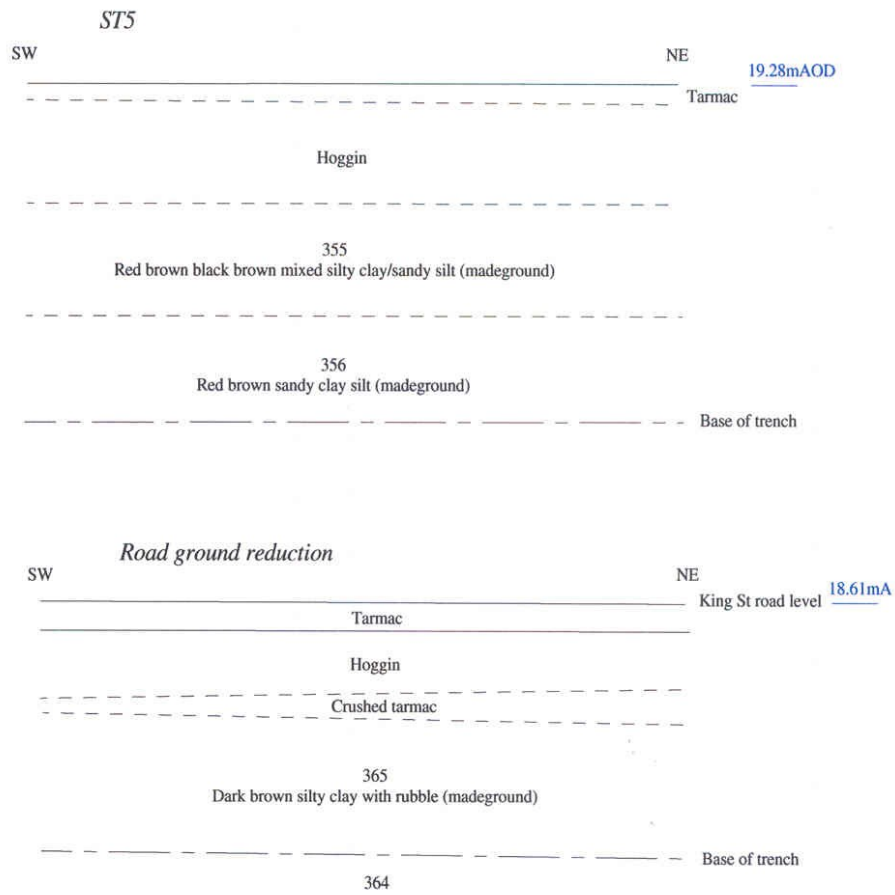


Figure 7. Sections

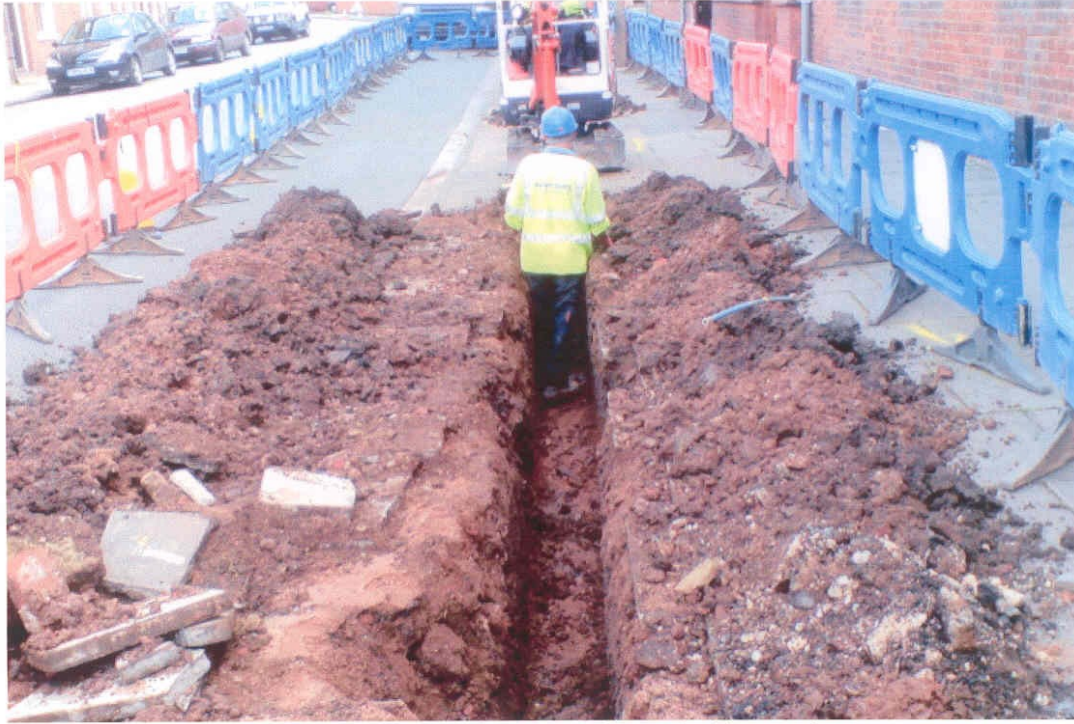


Plate 1. General working shot of ST2, looking north.



Plate 2. ST4, wall 302, looking east, scale 0.5m.



Plate 3. Northern end of ground reduction, floor 362, looking north-west, scale 1m

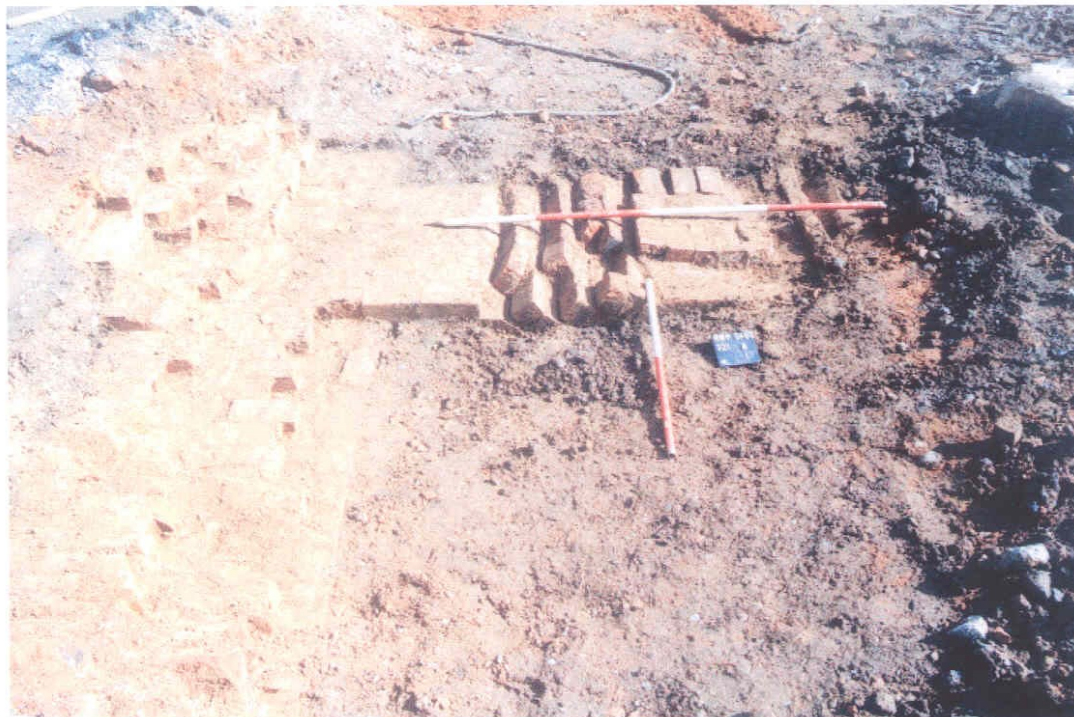


Plate 4. Southern end of ground reduction, wall 321, looking north-east, scales 2m and 1m.